DEVELOPMENT OF IECEU E-LEARNING PLATFORM AND ITS INTEGRATION INTO CRISIS MANAGEMENT TRAINING

Markko Kallonen[1], Ivana Boštjančič Pulko[2]

[1] *Laurea University of Applied Sciences (FINLAND)*
[2] *Centre for European Perspective (SLOVENIA)*

Abstract

This paper seeks to contribute to the ongoing development of work related to the use of new learning technologies by presenting an e-learning platform which was created as a part of the Horizon 2020 research project *Improving the Effectiveness of Capabilities in EU Conflict Prevention (IECEU)* [1]. The paper will additionally describe how the e-learning platform has been designed to be used as a part of blended learning concept in wider EU crisis management training.

The developed e-learning platform presents the summaries and research findings of eight case studies covered by IECEU related to the European Union's conflict prevention and crisis management. The paper describes the design and development process of the e-learning platform. The platform is based on Opigno/Drupal open source software which provides a clear and light basis for comprehensive content which is easy to maintain and update. The platform can be accessed free of charge at http://ieceulearning.eu/

From the onset, it was necessary to ensure that the team possessed the technical skills required/necessary to create the platform.

The more conventional e-learning environment was enriched with H5P animations and visual images. Due to the timeline of the project, the platform was created in a way that allows amending and up-dating the content of the learning environment during the entire project as well as after its lifecycle.

The e-learning platform is designed to be used as a complimentary tool in blended training related to (EU's) crisis management training. Additionally, it can be used by academic and other training institutions.

The paper will provide an account of a process that can support other researchers and stakeholders in planning similar activities. Moreover, the article provides an example of how research project results were integrated into relevant training through an e-learning platform. Finally, the described e-learning platform can be utilized as such for relevant training purposes by the training community as well as by all other interested stakeholders.

1 INTRODUCTION

1.1 IECEU – project

This paper is based on the work conducted as a part of the IECEU research project and its initial findings. The IECEU project seeks to:

1. Analyse and assess the current situation of eight selected on-going or past European Union (EU) Common Security and Defence Policy (CSDP) missions and operations.
2. Identify the lessons provided by these missions and assess the challenges and subsequently the options for the future crisis management.
3. Provide new solutions, approaches and recommendations for EU to guarantee long-term stability.

The findings of the project are being translated into open source based Drupal/Opigno e-learning platform containing elements of gamification in the form of animations and interactive quizzes. [2]

Drawing from the results of the IECEU project, this paper has three elements. Firstly, it presents the development work, design and content of the e-learning platform which has been created as part of the IECEU project. The content of the platform will be a subject to revisions and improvements during the entire duration of the project. Secondly, it describes how the e-learning platform has been

ISBN: 978-84-697-3777-4

designed to be integrated into relevant and already existing crisis prevention and crisis management training (mixed/blended training). And finally, the paper briefly discusses how the new e-learning technologies and approaches have been included into the EU's crisis management so far and how they can contribute to the EU's training practises in the future.

1.2 Current Challenges for EU Crisis Management Training

The EU is conducting its conflict prevention and crisis management activities in an increasingly complex environment. The EU needs to reflect this changing environment while developing its future crisis management training. Additionally, there is economic pressure to conduct training more efficiently in various EU bodies. The training policy is implemented by the member states' training providers on a national basis or through EU level training providers and projects. Only a handful of member states organize any type of training for purely civilian crisis management staff, whereas the training needs in the military and police are much better addressed, though the training could still be improved in some topical areas such as code of conduct or knowledge on multicultural environment. Since 2013, the ESDC [3] has provided various e-learning courses. The courses have included general autonomous knowledge units (AKUs) dealing with several relevant topics [4].

IECEU project findings have pinpointed the need to step up the crisis management training provided by the EU to meet the increasingly challenging conditions where the deployed as well as the local staff need to work. This can also mitigate to some extent the other identified challenge regarding the CSPD missions, namely the short rotation time of the international staff, which leads to inefficiency as the personnel need to spend a lot of time in familiarizing with their tasks and working environment. At the same time, institutional memory can also be lost with the seasoned staff, particularly if robust handover-takeover procedures are not in place.

According to the initial IECEU findings, the rotation phases between the various missions/operations are not synchronised, hence the number of people to be trained can vary a lot. As a result, each mission/operation has individual training needs, and therefore all training should be adapted to meet their specific needs.

2 E-LEARNING PLATFORM

E-learning

E-learning is an excellent way to provide pre-deployment or other training for mission staff. Nevertheless, e-learning in the pre-deployment phase is not a substitute for residential courses, particularly regarding classified information and team-building. From a legal point of view, and in more general terms, pre-deployment training is part of the employer's duty of care towards its employees. However, various security concerns and different status of the staff members (contracted, seconded, locals) make designing e-learning modules difficult.

Even though the main effort of CSDP training still relies on residential courses, the e-learning part is receiving increased attention. E-learning is independent of time and location and therefore presents a tangible tool to educate and train newly selected staff before their deployment to a mission area. Low running costs compared to residential courses are also in favour of online learning. There is currently no systematic approach to implement e-learning activities within the missions and operations.

In fast evolving situations, a well-structured e-learning environment can create a solid matrix for the crisis management training that can combine information with gamified skills elements. The platform can offer a complimentary cost effective tool that is easy to maintain, up-date and amend based on specific needs.

The developed IECEU project e-learning platform can be used free of charge. The user will only have to create his/her user profile. Subsequently, the required link to access the platform will be emailed to the user. The platform has been developed in a way that after initial introduction to the tool, the platform allows users to navigate freely to focus on their individual needs and interests. The target group of the e-learning tool includes staff seconded to the CSDP missions, contracted staff, national staff, researchers, educational institutions, students, civil servants, employees of NGOs. The user will obtain general understanding of the EU's conflict prevention and crisis management activities and the underlying concept of comprehensive security.

The e-learning platform can help to motivate learners and as a result facilitate reaching better learning results during crisis management training. In terms of theoretical frameworks, the field of edutainment

is still new and rather undeveloped. In fact, no solid theories have so far been developed to systematically assess the efficiency of diverse edutainment applications.

IECEU e-learning platform will mostly benefit the training providers offering pre-deployment, CSDP orientation trainings or core courses as well as specialisation trainings, which include subject on CSDP. Also, the missions will be able to utilise the toolbox in their induction trainings and all will benefit from the training evaluation set.

The e-learning platform will be maintained and up-dated also after the project has been completed to support universities and other training organisations to develop further their training activities related to conflict prevention and crisis management.

2.1 Development of the platform

The sketched concept of the platform was influenced by the fact that the new technology is changing rapidly and creating a rigid structure to function as a basis for the e-learning was not seen pragmatic and meaningful. The return on investment could be moderate as the technology is advancing with speed allowing the use of other types of technologies in the foreseeable future. Moreover, the limited project resources and time-line created natural limitations for the work.

The content of the e-learning platform can be amended and modified by missions to inform the new staff on the specific mission environment. Ideally, in the future, an e-learning platform could also be downloaded to a laptop, tablet or mobile phone and utilized as a part of the training conducted in mission areas. The possibility to adjust the platform to reflect the existing environment and procedures could create a pragmatic tool to enhance knowledge and thus implicitly also security of the mission staff members.

The development work was done with rather limited resources during four months. The process entailed a learning curve stressing the need for a sufficient timeframe with a margin for unforeseen delays related to research activities, the results of which form the content of the platform. This was also reflected in the project's risk mitigation plan covering the task. It was moreover vital to ensure, that the required research expertise in the field of CSDP and crisis management was included in the project research team from the start.

Composing good quality content for the platform proved out to be challenging due to different requirements needed in an online text. Most of the users are not willing to read long texts from the computer screen and yet the text should provide a balanced view of the eight CSDP mission and operation cases researched as part of the IECEU. Related to this, drafting good research methodology and a set of questions for the e-learning platform is also challenging. The e-learning questions should measure the points that the case studies seek to convey. However, the length of the text does not allow very elaborated questions. On the other hand, the questions should also be challenging enough and not too simplistic.

2.1.1 Content of the platform

The platform, currently consisting of ten lessons, allows users to navigate freely focusing on their individual needs and interests. First, the platform presents briefly the most relevant EU institutions as well as planning and implementation activities related to EU conflict prevention and crisis management. Then it summaries the eight IECEU case studies (EU CSDP missions and operations in Kosovo, Bosnia and Herzegovina, Palestine Territories, Afghanistan, Libya, Congo, Central African Republic and South Sudan) and their subsequent comparative analysis. All the chapters are concluded by a quiz measuring the user's learning achievements. Finally, a chapter titled General competencies in conflict management, consisting of animations and interactive elements, presents 13 generic topics related to crisis management

By completing this application, the user will obtain basic understanding of the EU processes and institutions which are involved in planning and implementing the EU's Common Security and Defence Policy (CSDP) missions and operations. The user will be introduced to the common challenges related to coherent actions at strategic and operational levels.

The platform contains elements of edutainment which can be defined as a combination of education and entertainment. Edutainment often consist of interactive technologies such as digital simulation games. The underlying principal of edutainment is to catch the learner's attention and maintain it by

engaging emotions and generating feelings of pleasure during the learning process with the help of gaming. The platform includes animations and an interactive quiz at the end of each module. [5]

2.1.2 Technical Specifications

Prior to the development phase, a desk-top study was carried out to identify the existing options for developing the platform. Developing learning tools is a demanding undertaking, and limited financial resources play a big part in the challenges faced by these kinds of projects. The process requires diverse expertise, including ICT experts (computer programming, server maintenance) graphic design, copywriting, content expertise etc. The timeline as well as the resources available created certain limitations for the platform.

When choosing the most suitable open source Learning Management System (LMS) for a specific goal, the selection is based on the needs of the user. At the time of the writing of this paper, there are over 600 different LMS solutions. The platform was to be based on an open source code. The desired functions included: options for gamified learning, correct display on mobile devices, multi-browser compatibility to name a few. Against these criteria, three of the most used online platforms were examined more closely. The other freely available tools based on an open source code are either incomplete, or they require considerable adjustments in the server and/or in the administrative elements, or they simply do not possess the qualities the project set forth to achieve. The pros and cons of the chosen solutions were subsequently compared according to Human-Computer Interaction (HCI). [6]

After assessing the technical requirements of the e-learning tool and comparing the identified options, the project team decided to create a Drupal/Opigno based open source e-learning platform. There were several reasons for this. The comparison was carried out to select a platform that is free of charge, based on an open source code and that could be created as soon as possible with little adjustments. This provided the developers with more time to work with the content itself. The chosen option, Opigno provided a tool which could be made operational with small adjustments (such as removing unwanted features and changing visual styles, colours, certificate layouts and so on).

The IECEU e-learning platform does not use all default functions. The design of the user interface is based on clarity and therefore the options for different functions were kept limited. Additionally, many course-type functions available were not needed for the IECEU platform. The design was deliberately kept light. The potential user group of the application is broad. As a result, the platform was designed in a way that allows access to one or several modules. The user is free to browse through the selected modules. Consequently, the structure and navigation on the platform needs to be simple and self-guiding.

The lessons available in the platform entail quizzes (true/false, multiple choice, matching, long text, grouping, and fill-in blanks questions) with centralised questions database, video gallery, user forum, surveys, and statistics. The Opigno based learning environment contains an automatic PDF certificate generation ability to a user who has successfully completed all the modules. The other features include a flexible access control based on the status of the user: student, teacher, class coach, and administrator. At this state, the developed platform only contains administrator and student/user functions. The number of the users is unlimited. The platform includes HTML5 Package (H5P) which allows the creation, use and recycling of various interactive H5P elements.

2.1.3 Animations and visual elements

Creation of more sophisticated serious-game-like elements would have required a different setting. It was decided that cartoon-like visualisations would be used; to keep the developing and programming time manageable on one hand, and on the other hand to keep things flexible to be able to accommodate any possible changes. Even though the topic is serious, the visualisations were preferred to be kept light. The possibility of using authentic pictures and videos was also discussed. The developers concluded that using photographs of crisis management mission areas is challenging for several reasons. The pictures should not show any operational mission activities. The persons in the pictures would ideally not be recognisable. Real pictures would also connect the content of specific themes to certain cases and possibly set prior expectations. Finally, the animation visualisations can be recycled in the platform providing long-term building blocks for the platform.

The themes for the animations were selected and developed both based on the findings from the CSDP missions and operations case studies research (co-creation) and on various themes which have been identified as important by the end-users and persons who have worked in the CSDP

missions/operations. Topics provide pragmatic examples the personnel may face in various missions and operations. The short animations (roughly 30 seconds long) are followed by a quiz. Pedagogically they contain elements of a case based and problem based learning approach which is in line with learning constructivist ideas.

2.1.4 Development stages

The development of the tool was based on co-planning and feeding end-users' inputs into the development process. The broad focus group of the working process required regular feedback from the project partners. The systematic development progress was scrutinized against applicable criteria. There are numerous documents dealing with the issue. [7]

The development work of the e-learning platform consists of five different development phases integrating the feedback from the consortium members and end-users:

1 Analysis of required specifications,

2 Developing and coding the platform,

3 Initial testing of the product (including feedback collection and subsequent improvements),

4 Piloting of the revised platform; additional phase to complete the development cycle,

5 Revising the final structure and learning objectives based on the experience obtained during the development phases and on the collected feedback. Key points: user-centered approach, consultations with the end-users (EEAS, various training institutions etc.), online based survey and/or direct consultations with stakeholders.

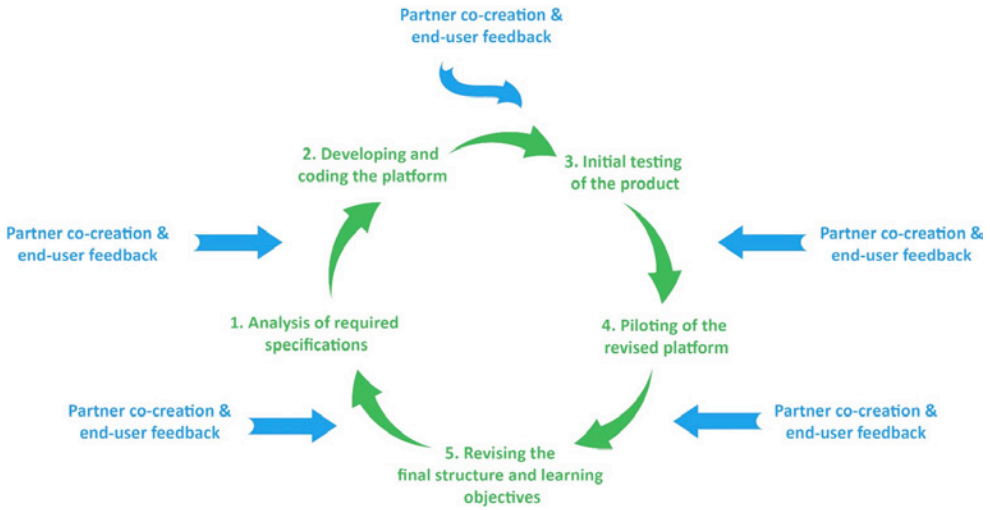

Figure 1. E-learning platform development process.

The evaluation report will also gather information about the number of logins to the learning environment and how many participants have completed it. The e-learning tool will also provide the results of the quiz (number of incorrect and correct answers they scored) and at the end of the platform, some space will be made available for users to leave qualitative feedback about the e-learning platform and possible suggestions to improve its content. Ideally, an evaluation mission would be launched to assess a group of representatives deploying to a mission, who have completed the learning environment and check after six months in what way the e-learning has helped them in their work. The e-learning will be evaluated by checking the learning progress of individual participants in anonymous in- and out-tests. A group of students will be asked to complete an in-test prior to completing one module or several modules provided in the tool and an out-test after completing the module/modules.

The IECEU platform will offer a complimentary tool to enhance the knowledge of a broad end-user audience on themes related to selected case studies and EU crisis management decision making and planning. Despite the presented benefits e-learning can provide for various kinds of training, it is good to bear in mind that "digital tools do not substitute face-to-face methods, but complement them by enabling more constant interaction with users and lowering certain users' participation thresholds." [8]

3 BLENDED TRAINING

Based on Blended Learning [9] theory, we can argue that integrated e-learning can be used as an excellent supplement tool to traditional trainings and lessons.

Trainers could use an e-learning tool to facilitate their work and save time, while learners could benefit from being able to additionally repeat the content at home, at their own pace and according to their own time schedule. Given the fact that the internet and most digital learning technologies are still relatively new, instructional alternatives such as blended learning could be de facto reform strategies; by incorporating blended learning, trainers are encouraged to review the ways in which they have instructed and interacted with learners.

Effective evaluation of the platform needs to be multi-layered to identify which aspects of the e-learning platform need adjustments. Hence, it is useful to carry out several types of evaluation. According to Kirkpatrick [10] four levels of evaluation can be distinguished: reaction, learning, behaviour, and results. To guarantee a systematic and comprehensive assessment of the e-learning tool and its impact, IECEU project will conduct different types of evaluation that correspond to the four levels: evaluation by the producers, evaluations by the users, in- and out-tests for the users and possibly an Impact Evaluation Mission (IEM). Evaluation of the IECEU e-learning toolis an integral part of the quality control to continuously up-date and improve the content and functionality of it.

The integration of the e-learning tool into crisis management training follows learner centred and active learning methodology. This is in line with the pedagogical theory of constructivism where the individual students are active members of the knowledge making process. The strength of the blended training is based on an attempt to prepare students for problem solving in a complex environment. In blended training, the teacher performs more as a facilitator compared with more conventional teaching. The teacher/trainer seeks to understand the way how a student interprets knowledge and helps to refine and guide the process. [11]

The aim of the IECEU e-learning is to introduce users with the IECEU project cases and comparative analysis based on the conducted research. After going through all the modules, the user will understand the EU's conflict prevention and crisis management activities and the underlying concept of comprehensive security. The user will know the most relevant EU institutions related to planning and implementing CSDP missions and operations as well as the main findings of the eight researched CSDP missions and operations.

A text describing the learning objectives is presented at the beginning of each module to set the learning objectives which the user should achieve after completing the module.

During the expert consultations, some interlocutors suggested that the user replies could be collected to assess the knowledge of the users (the most common mistakes) on conflict prevention and crisis management to improve the e-learning environment as well as to address the identified themes more effectively in the future. This 'big data' could then provide a way to develop and refine crisis training further to achieve better learning results in the future.

As stated, the main object of e-learning and more specifically, the developed tool, is not to replace conventional training. Blended training offers interaction with a trainer, which helps to deepen understanding of the platform related themes. The platform provides a fast way to collect feedback to improve the content or functionalities of the platform further: instant hot-wash-up with a trainer/mentor to deepen users' understanding as well as to identify possible knowledge gaps to be covered better in various training activities.

4 CONCLUSIONS

The IECEU e-learning platform can provide a beneficial tool to be used in the future training courses and exercises for the experts participating in the CSDP missions and operations. The platform can be utilized in blended/hybrid training where e-learning is combined with hands on training with trainers. This can lead to more effective training outcomes. Ideally, the platform will also be used by a large public in the EU countries and by the members of local communities in crisis and conflict areas to increase transparency and understanding on the EU's crisis management activities and objectives.

The EU has in the recent couple of years demonstrated increasing interest towards e-learning and has invested in developing various e-learning contents to support conflict prevention/crisis management related training. However, it has not been done in a coordinated and well-synchronised manner

despite the potentials e-learning has as a cost-effective, practical and easily manageable complimentary tool. The research findings specifically stress the need for enhanced training among CSDP mission participants since training at the EU level is not offered in a systematic manner. This need creates a strong incentive to develop and utilize e-learning in a more systematic manner. To support the EU's comprehensive approach, it would be logical and beneficial to try to restructure e-learning platforms in a more holistic manner. The younger professionals joining the CSDP missions and operations are more accustomed to use e-learning tools in their learning.

Moreover, it is vital that the design of the platform encompasses all the inputs from the diverse shareholders to ensure the high quality and applicability of the product. The tool can also be tailored to reflect the local environment and updated easily to keep it accurate in the fast changing field. Modern technology also enables creating high risk scenarios for training purposes in a safe manner. E-learning tools can also offer a way to preserve some of the institutional memory which has been identified as one of the operational challenges for the CSDP.

The developed e-learning tool can be used as a part of blended CSDP pre-deployment training, core course, CSDP orientation training and other types of training. The learner centred active learning methodology the IECEU e-learning platform is utilizing is in line with the pedagogical theory of constructivism which in short states that the individual learning process is based on the use of already existing information, on the personnel's ideas and experiences.

The lack of easily accessible knowledge related to CSDP missions can hamper missions' work at the operational level. There is a need for sound pre-mission and other types of training to ensure that all mission staff is on the same page at the beginning of their deployment which in turn will contribute to the overall effectiveness of the CSDP mission.

The various international actors of crisis management training share a common interest to increase the use of modern technology for training purposes. The benefits of this include (in the long run) cost efficiency and modern technology based complimentary tools to support current didactics. Especially the curricula items not directly related to life saving skills are elements that could be delivered via online learning tools.

The EU should also draw on existing platforms already providing pre-deployment training. The other existing e-learning platforms related to crisis management include the European Security and Defence College (ESDC), Europe's New Training Initiative for Civilian Crisis Management (ENTRi), European Police College (CEPOL) and EU Police Services Training (EUPST). IECEU e-learning platform will benefit the training providers offering pre-deployment, CSDP orientation trainings orcore courses as well as specialisation training. The IECEU platform allows adults to evaluate themselves in a self-paced manner without inflexible formal exams and grading given by teachers/trainers.

Making the e-learning environments available in a coordinated manner would create synergies for training and prevent unplanned duplication. When platforms are at least partially accessible for larger audiences, it can also help to improve the general understandings of the objectives of the EU crisis prevention and management. It is vital to ensure that all the staff working for the crisis management missions have elementary levels of knowledge about the mission environment and mission aims at the beginning of their deployment. The e-learning platform reflecting the findings of the IECEU project offers one tool to fulfill this goal through blended training.

ACKNOWLEDGEMENTS

This article is drawing from the work carried out as a part of the IECEU project. The project has received funding from the EU Framework Programme for Research and Innovation HORIZON 2020 under grant agreement no 653371. The content of this article reflects the authors' view and the European Commission is not responsible for any use that may be made of the information it contains.

REFERENCES

[1] Improving the Effectiveness of Capabilities in EU Conflict Prevention project (IECEU) project (05/2015-01/2018). The consortium (11 participants from seven different European countries) consists of both civilian and military research and training organisations. The IECEU – project is funded by the EU Framework Programme for Research and Innovation, Horizon 2020. For more information on IECEU is available at: http://www.ieceu-project.com/

[2] More information on Drupal/Opigno is available at: https://www.opigno.org/en

[3] The European Security and Defence College (ESDC) was established in 2005 and is organised as a network of the institutes, colleges, academies, universities and institutions within the EU dealing with security and defence policy. Its objective is to further enhance the European security culture, promote better understanding of the CSDP by organizing and conducting training activities in the field of CSDP at the strategic level, Joint Action 2008/550/CFSP of 23 June 2008 establishing a European Security and Defence College (ESDC), Official Journal of the European Union, L176, pp 20-21.

[4] Autonomous Knowledge Units (AKUs) of the ESDC, state of affairs – January 2016, ESDC/2016/009, 26 January, 2016.; ESDC, more information available at: http://eeas.europa.eu/csdp/structures-instruments-agencies/european-security-defence-college/index_en.htm

[5] T. Santonen and E. Faber, Edward, "Towards a comprehensive framework to analyse edutainment applications" in *Shaping the Frontiers of Innovation Management*, Proceedings of the XXVI ISPIM Conference, Budapest, Hungary, 2015.

[6] G.J Kim, *Human - Computer Interaction, Fundamentals and Practice*, CRC Press, 2015, available at: http://www.ittoday.info/Excerpts/HCI.pdf

[7] The Quality Assessment for Elearning: a Benchmarking Approach produced by the European Association of Distance Teaching Universities as well as Verkko-oppimateriaalin Laatukriteerit produced by experts appointed by the Finnish National Board of Education Quality Assessment for E-learning, Verkko-oppimateriaalin laatukriteerit, Työryhmän raportti 2005, Opetushallitus, Edita, Helsinki, 2006, p. 12.; *A Benchmarking Approach*, EADTU, Third Edition, 2016, available at: http://e-xcellencelabel.eadtu.eu/images/documents/Excellence_manual_full.pdf

[8] P. Friedrich, *Web-based co-design. Social media tools to enhance user-centered design and innovation process*, University of Tampere, 2013, available at: http://lib.tkk.fi/Diss/2013/isbn9789513880040/isbn9789513880040.pdf

[9] Blended learning approach use multiple methods to deliver learning by combining more conventional face-to-face teaching with online activities. Blended learning (also known as hybrid learning) has evolved from the distance and open education movements and e-learning. The term blended learning was first used in late 1990s and its definition has depending on the context. N. Friesen, *Report: Defining Blended Learning*, 2012, available at: http://learningspaces.org/papers/Defining_Blended_Learning_NF.pdf

[10] D.L Kirkpatrick, *Evaluating Training Programs*. San Francisco, Berrett-Koehler Publishers, Inc., 1994.

[11] A. Al-Huneidi, J. Schreurs, "Constructivism Based Blended Learning in Higher Education". In: M.D Lytras, D. Ruan, R.D Tennyson, P. Ordonez De Pablos, F.J García Peñalvo, L. Rusu (eds) Information Systems, E-learning, and Knowledge Management Research. WSKS 2011. Communications in Computer and Information Science, vol 278. Springer, Berlin, Heidelberg, 2013, p. 582.